NAME: DATE:

p1020: graded take-home open-note practice exam (version 211)

Question 1

Let f represent a function. If $f[8] = 35$, then there exists a knowable solution to the equation below.

$$y = 2 \cdot f\left[\frac{x - 18}{3}\right] - 23$$

Find the solution.

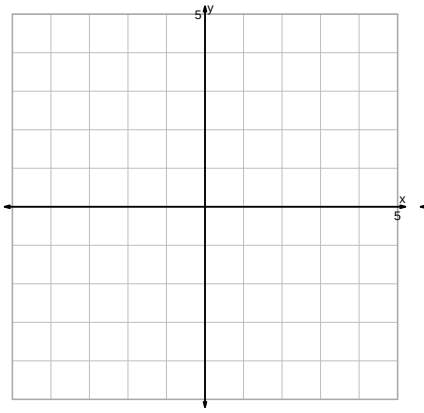
$x =$

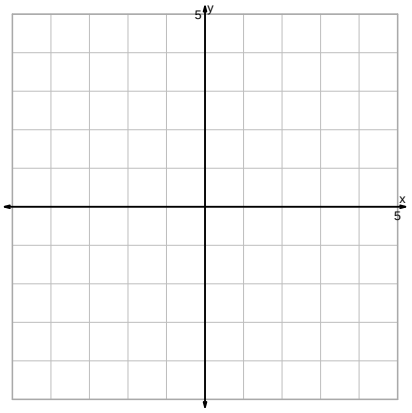
$y =$

Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

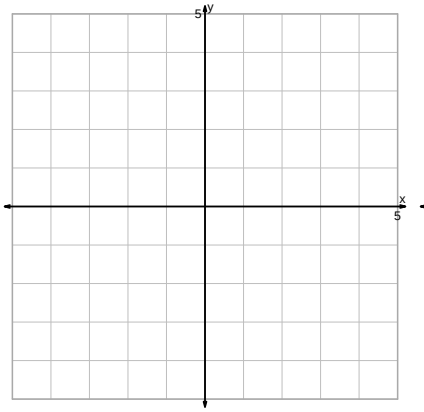
$y = \frac{\sqrt{x}}{2}$

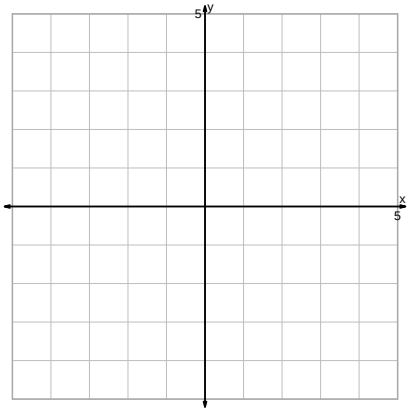




$y = 2 \cdot x^3$

$y = \log_2(x + 2)$

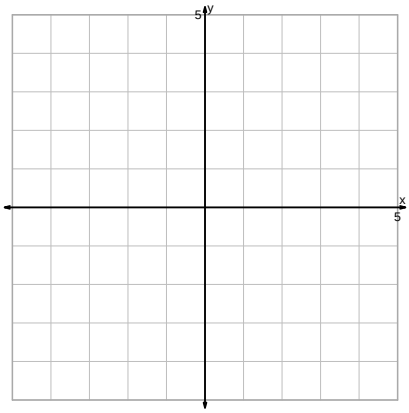


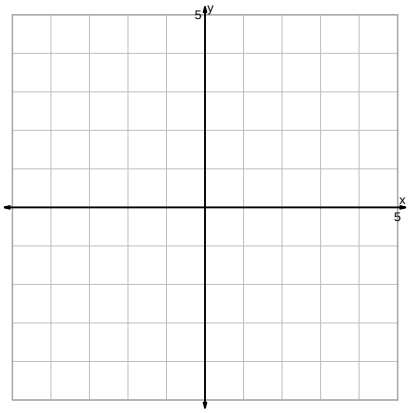


$y = 2^{-x}$

Question 2 continued...

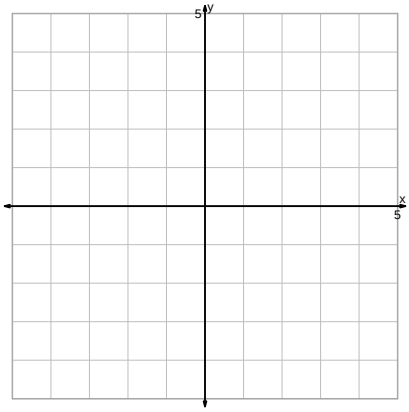
$y = \left(\frac{x}{2}\right)^2$

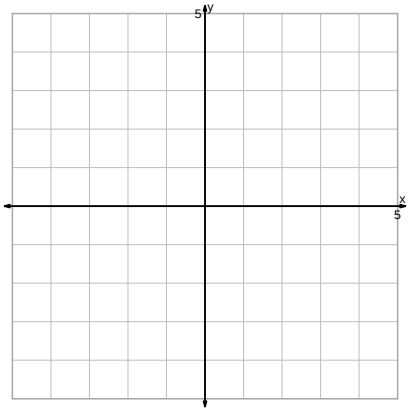




$y = \sqrt[3]{x-2}$

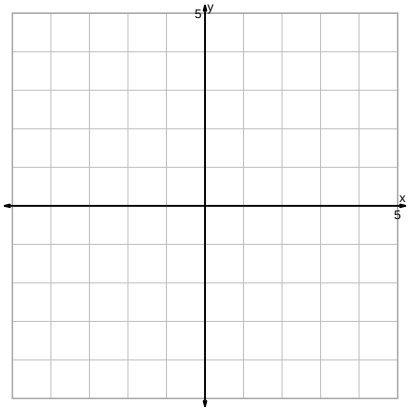
$y = \left(2x\right)^2$

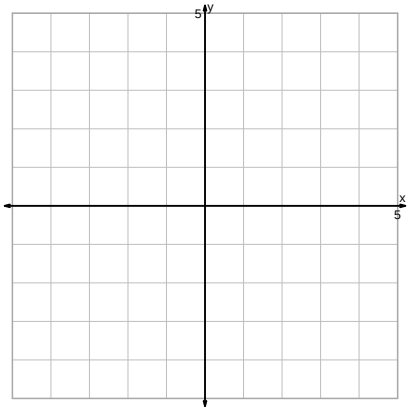




$y = x^3 - 2$

$y = \sqrt[3]{x} + 2$

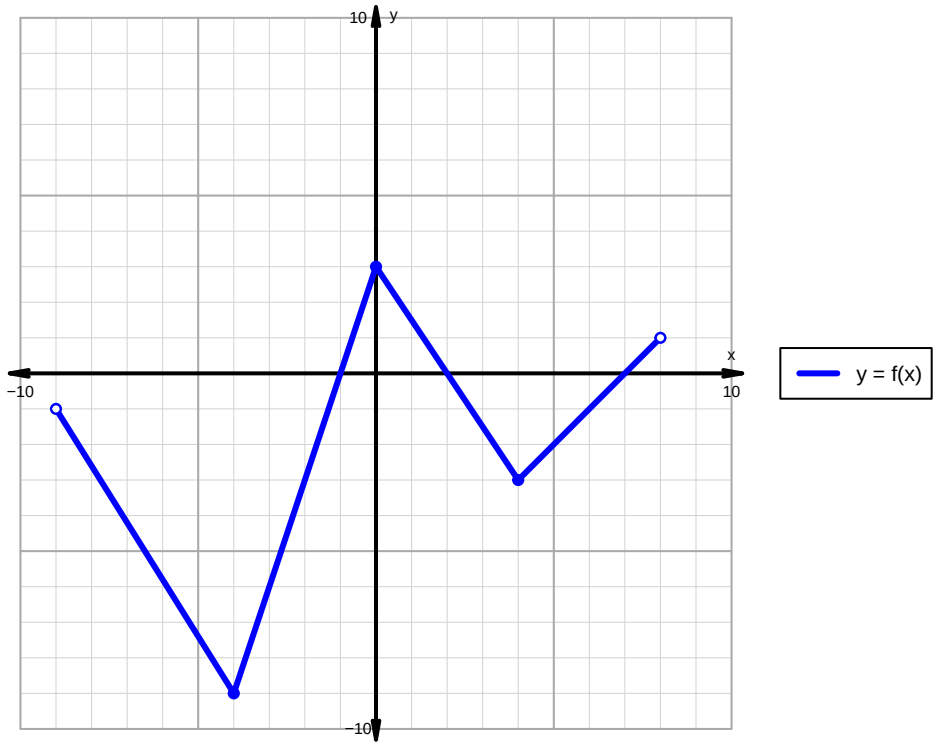




$y = -\log_2\left(x\right)$

Question 3

A function is graphed below.



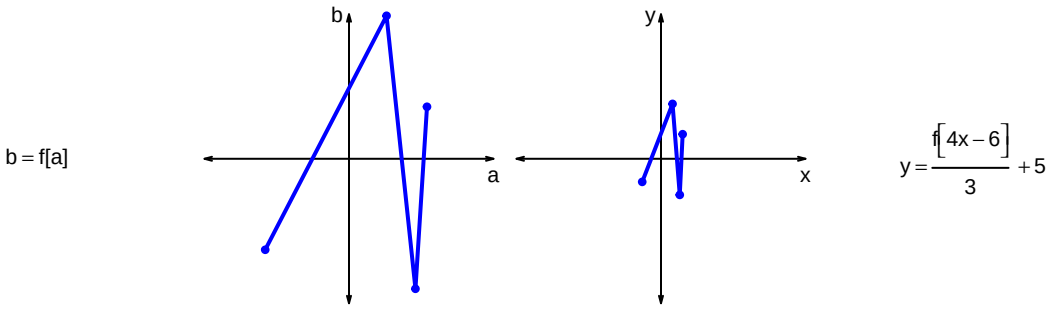
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = \frac{f[4x-6]}{3} + 5$ are represented below in a table and on graphs.

a	b	x	y
-58	-63	-13	-16
26	99	8	38
46	-90	13	-25
54	36	15	17



a. Write formulas for calculating x from a and calculating y from b. (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = \frac{f[4x-6]}{3} + 5$?

Question 5

A parent square-root function is transformed in the following ways:

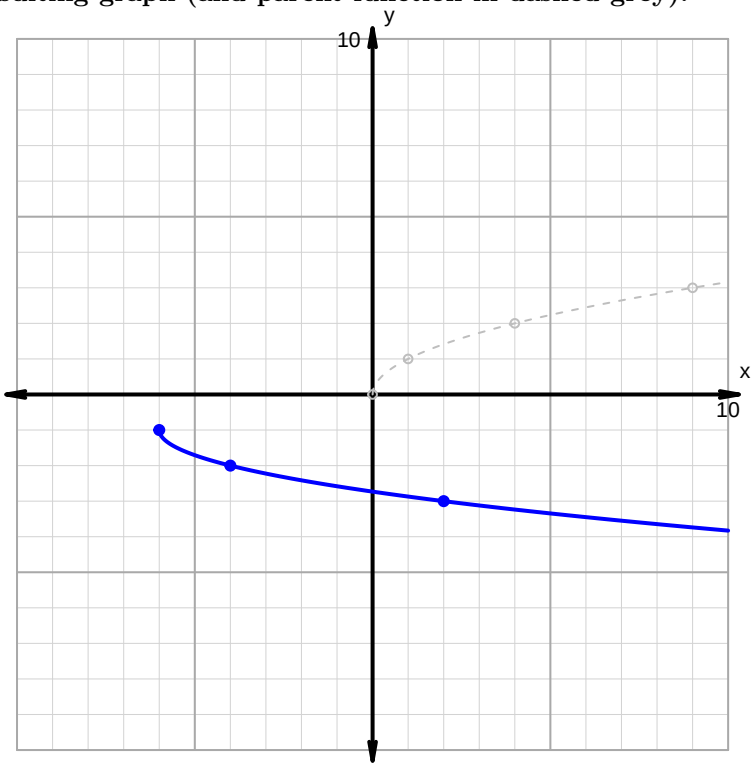
Horizontal transformations

1. Translate left by distance 3.
2. Horizontal stretch by factor 2.

Vertical transformations

1. Vertical reflection over x axis.
2. Translate down by distance 1.

Resulting graph (and parent function in dashed grey):

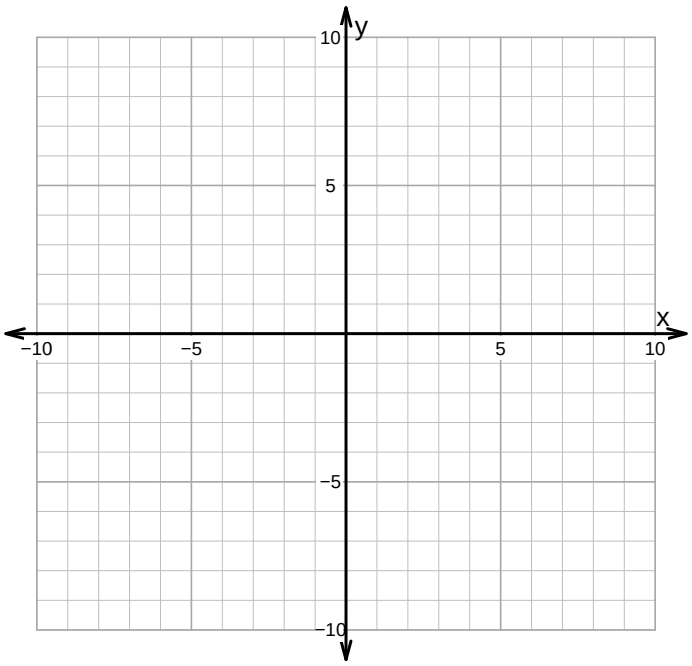


- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{1}{2} \cdot |x + 2| - 3$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	